ZeroDT I/O-24

DIN Rail Mount – 2 Loop, 24 Volt DC Surge Protection

Datasheet
Feb 2024

The design of the ZeroDT I/O-24 utilizes the latest generation, non-degrading Silicon Avalanche Suppression Diodes (SASDs) to protect electronic equipment and systems from transient over-voltages. The unit is designed to limit the energy of these surges on 4-20 mA current loops, RS-485/422/232 communication lines, digital buses as DeviceNet, FOUNDATION™ Fieldbus and PROFIBUS PA, as well as low voltage DC power lines. The unit easily mounts on a standard DIN rail and houses the 8 connection lugs (4 in and 4 out) and the SASD suppression circuitry.

This SASD technology provides continuous, bi-directional (eliminating installation issues), and bi-polar (both positive and negative) protection that returns to its original state (no loss or degradation of protection with usage) once the over-voltage has passed.

ELECTRICAL SPECIFICATIONS

- **Response Time:** <5 nanoseconds.
- **Configuration:** Series connected, or pass-thru -- protects 2 pair or 4 wires.
- **Nominal Operating Voltage:** 24 VDC.
- **Maximum Pass-thru Current (each line):** 8 Amps.
- **Maximum Continuous Operating Voltage (MCOV) Line-to-Ground:** 36 VDC.
- **Nominal Surge Current, I_{Nom} (able to withstand repeated applications):**
  - **8/20 µs (IEEE/ANSI C62.41 Combination Wave), Line-to-Ground:** >1,200 Amps.
  - **10/1000 µs (IEEE/ANSI C62.41 Long Wave), Line-to-Ground:** >130 Amps.
- **Voltage Protection Level (VPL):**
  - **1,200 Amps, 8/20 µs, Line-to-Ground:** ≤65 V_{peak}
  - **130 Amps, 10/1000 µs, Line-to-Ground:** ≤55 V_{peak}

MECHANICAL SPECIFICATIONS

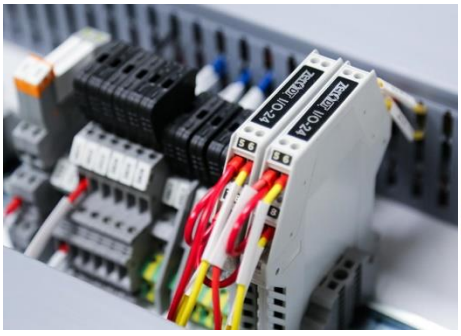
- **Input / Output Connection:** Compression lug, #26 to #14 AWG.
- **Module Dimensions:** 4.37" H x 3.90" D x 0.5" W (111 mm H x 99 mm D x 12.7 mm W).
- **DIN Rail Mount:** easily attached or removed from 35 mm DIN rail. (DIN rail must be connected to a solid Ground for proper suppression operation)

ENVIRONMENTAL SPECIFICATIONS

- **Operating / Storage Temperature:** -40ºC to +65ºC.
- **Humidity:** 0 to 95% non-condensing.

CERTIFICATIONS

- **UL Listed - Isolated Loop Circuit Protector (E499683)**
- **UL Listed - Isolated Loop Circuit Protector for use in Hazardous Locations (E502612)**
  - **Class I, Division 2, Groups A, B, C and D Hazardous Locations, T6 - T_{amb} = -40ºC to 65ºC**
- **RoHS Compliant**



MADE IN THE U.S.A. WITH PRIDE

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ZeroDT I/O-24

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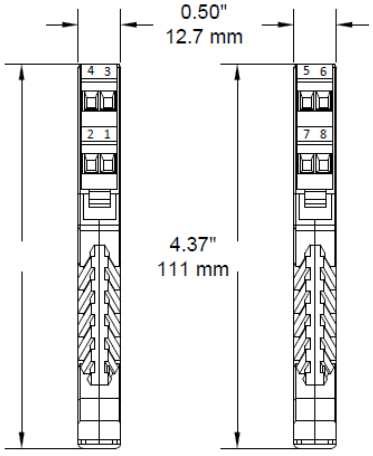
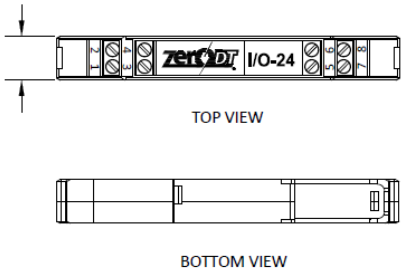
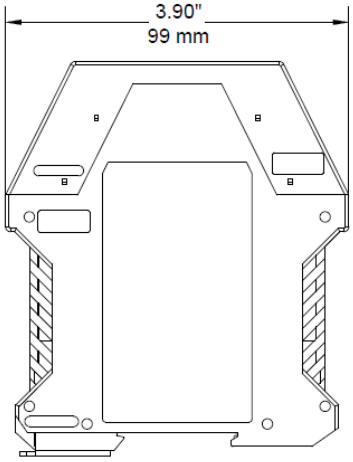
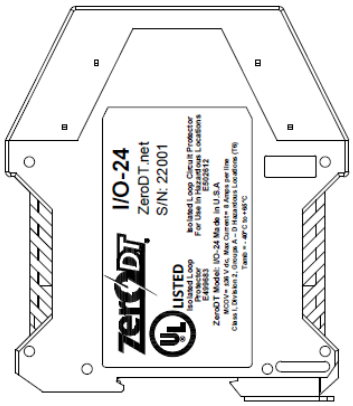
DIMENSIONAL DRAWINGS

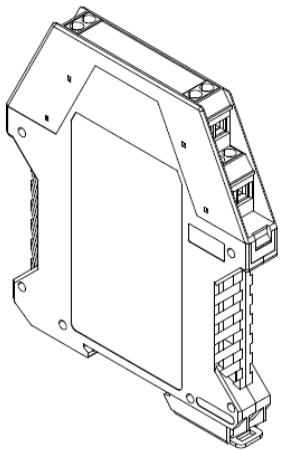








Isolated Loop Protector
E499683
Isolated Loop Circuit Protector
For Use In Hazardous Locations
E502612



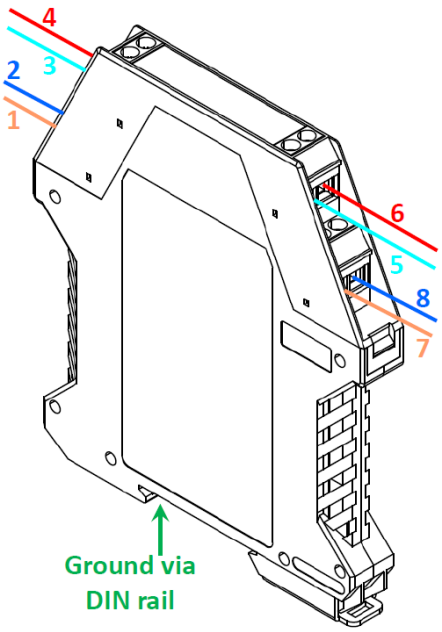
⚠ WARNING EXPLOSION HAZARD:
Do not disconnect equipment while the circuit is live or unless the area is known to be free of ignitable concentrations.

INSTALLATION PROCEDURE

1. For maximum overvoltage protection, mount the **ZeroDT I/O-24** as close as possible to the equipment to be protected.
2. The **ZeroDT I/O-24** uses a self-grounding mounting foot designed to fit standard 35mm DIN rail.

   DIN RAIL MUST BE PROPERLY BONDED TO A LOW RESISTANCE EARTH GROUND FOR PROPER OPERATION AND OVERVOLTAGE PROTECTION.
3. The **ZeroDT I/O-24** unit is to be installed in accordance with the applicable requirements of the National Electric Code and the local authorities having jurisdiction.
4. **Wiring Installation:** Terminate either DC power or data/signal loop conductors to the screw terminals provided on the module according to the legend shown: (NOTE: Screw terminals are compatible with #26 - #14 AWG wire.)

   The ZeroDT I/O-24 allows either side of the module to be the INPUT or the OUTPUT ().
5. When wiring a shielded cable, use feed thru terminal blocks to secure the shield for each loop.
6. In the unlikely event that the **ZeroDT I/O-24** self-sacrifices, DC power and communications will be interrupted.



This equipment is suitable for use in Class I, Div. 2, Gr. A, B, C, or D (T6) as well as in non-hazardous locations.